

CLAIMS:

1. A method comprising:
monitoring a signal that varies as a function of patient activity;
periodically determining an activity level of the patient based on the signal;
associating each of the determined activity levels with a therapy parameter set
currently used by a medical device to deliver a therapy to a patient when the activity level is
determined; and
determining a value of an activity metric for each of a plurality of therapy parameter
sets based on activity levels associated with the therapy parameter sets.
2. The method of claim 1, wherein the signal comprises a signal generated by an
accelerometer, the method further comprising filtering the signal to pass a band from
approximately 0.1 Hz to approximately 10 Hz.
3. The method of claim 1, wherein periodically determining an activity level comprises:
determining when the patient is awake; and
periodically determining an activity level while the patient is awake.
4. The method of claim 1, wherein determining a value of an activity metric comprises
determining at least one of a mean and a median of activity levels associated with the therapy
parameter set.
5. The method of claim 4, wherein determining a value of an activity metric comprises:
comparing the at least one of the mean and the median activity level to at least one
threshold; and
selecting the activity metric value from a plurality of predetermined possible activity
metric values based on the comparison.

6. The method of claim 1, wherein determining a value of an activity metric for a therapy parameter set comprises:
 - comparing each of the activity levels associated with the therapy parameter set to a threshold value; and
 - determining at least one of a percentage of time above the threshold and a percentage of time below the threshold.
7. The method of claim 1, wherein determining a value of an activity metric for a therapy parameter set comprises:
 - comparing each of the activity levels associated with the therapy parameter set to a threshold value; and
 - determining an average length of time that consecutively determined activity levels associated with the therapy parameter set were above the threshold.
8. The method of claim 1, wherein periodically determining an activity level comprises periodically determining a number of activity counts.
9. The method of claim 8, wherein determining an activity metric value for each of a plurality of therapy parameter sets comprises determining an average number of activity counts per a unit of time for each of the plurality of therapy parameter sets based on the numbers of activity counts associated with the therapy parameter sets.
10. The method of claim 9, wherein determining an average number of activity counts per a unit of time comprises determining an average number of activity counts over a period of time substantially within a range from 10 to 60 minutes.
11. The method of claim 1, wherein periodically determining an activity level comprises periodically determining a value of at least one physiological parameter of the patient.

12. The method of claim 11, wherein periodically determining a value of a physiological parameter comprises periodically determining at least one of a heart rate, a respiration rate, respiratory volume, a core temperature, and a muscular activity level.
13. The method of claim 1, further comprising presenting a list of the plurality of therapy parameter sets and activity metric values associated with the therapy parameter sets.
14. The method of claim 13, further comprising ordering the list of therapy parameter sets according to the associated activity metric values.
15. The method of claim 14, wherein determining a value of an activity metric comprises determining a value of each of a plurality of activity metrics for each of a plurality of therapy parameter sets based on activity levels associated with the therapy parameter sets, and ordering the list comprises ordering the list according to a user selected one of the activity metrics.
16. The method of claim 1, wherein determining a value of an activity metric comprises:
determining a value of each of a plurality of activity metrics; and
determining a value of an overall activity metric based on the plurality of activity metric values.
17. The method of claim 1, further comprising presenting a graphical representation of the determined activity levels.
18. The method of claim 17, wherein presenting a graphical representation comprises presenting at least one of a trend diagram, a histogram and a pie chart based on the determined activity levels.
19. The method of claim 1, wherein the medical device comprises an implantable medical device.

20. The method of claim 19, wherein the implantable medical device comprises at least one of an implantable neurostimulator and an implantable drug pump.
21. The method of claim 1, wherein the medical device comprises a trial neurostimulator.
22. A medical system comprising:
 - a medical device that delivers a therapy to a patient; and
 - a processor that monitors a signal that varies as a function of patient activity, periodically determines an activity level of the patient based on the signal, associates each of the determined activity levels with a therapy parameter set currently used by the medical device to deliver the therapy to the patient when the activity level is determined, and determines a value of an activity metric for each of a plurality of therapy parameter sets based on activity levels associated with the therapy parameter sets.
23. The medical system of claim 22, wherein the medical device includes the processor.
24. The medical system of claim 22, further comprising a programming device that includes the processor.
25. The medical system of claim 22, wherein the signal comprises a signal generated by an accelerometer, and the medical device filters the signal to pass a band from approximately 0.1 Hz to approximately 10 Hz.
26. The medical system of claim 22, wherein the processor determines when the patient is awake, and periodically determines an activity level of the patient while the patient is awake.
27. The medical system of claim 22, wherein, for each of the therapy parameter sets, the processor determines at least one of a mean and a median of activity levels associated with the therapy parameter set.

28. The medical system of claim 27, wherein, for each of the therapy parameter sets, the processor compares the at least one of the mean and the median activity level to at least one threshold, and selects an activity metric value from a plurality of predetermined possible activity metric values based on the comparison.

29. The medical system of claim 22, wherein, for each of the therapy parameter sets, the processor compares each of the activity levels associated with the therapy parameter set to a threshold value, and determines as the activity metric value for the therapy parameter set at least one of a percentage of time above the threshold and a percentage of time below the threshold.

30. The medical system of claim 22, wherein, for each of the plurality of parameter sets, the processor compares each of the activity levels associated with the therapy parameter set to a threshold value, and determines as the activity metric value for the parameter set an average length of time that consecutively determined activity levels were above the threshold.

31. The medical system of claim 22, wherein an activity level comprises a number of activity counts.

32. The medical system of claim 31, wherein the activity metric value for each of the therapy parameter sets comprises an average number of activity counts per a unit of time.

33. The medical system of claim 32, wherein the unit of time is substantially within a range from 10 to 60 minutes.

34. The medical system of claim 22, wherein the processor periodically determines an activity level by periodically determining a value of at least physiological parameter of the patient.

35. The medical system of claim 34, wherein the processor periodically determines at least one of a heart rate, a respiration rate, a respiratory volume, a core temperature, and a muscular activity level.
36. The medical system of claim 22, further comprising a display to present a list of the plurality of therapy parameter sets and activity metric values associated with the therapy parameter sets.
37. The medical system of claim 36, further comprising a programming device that includes the display.
38. The medical system of claim 37, wherein the programming device orders the list of therapy parameter sets according to the associated activity metric values.
39. The medical system of claim 38, wherein the processor determines a value of each of a plurality of activity metrics for each of the plurality of therapy parameter sets based on activity levels associated with the therapy parameter sets, and the programming device orders the list according to a user selected one of the activity metrics.
40. The medical system of claim 36, wherein the medical device includes the display, and the processor generates the list and presents the list via the display.
41. The medical system of claim 22, wherein the processor determines a value of each of a plurality of activity metrics, and determines a value of an overall activity metric based on the plurality of activity metric values.
42. The medical system of claim 22, further comprising a programming device that includes a display, wherein the programming device presents a graphical representation of the activity levels determined by the medical device via the display.

43. The medical system of claim 42, wherein the programming device presents at least one of a trend diagram, a histogram and a pie chart via the display based on the activity levels determined by the medical device.
44. The medical system of claim 22, wherein the medical device comprises an implantable medical device.
45. The medical system of claim 44, wherein the implantable medical device comprises at least one of an implantable neurostimulator and an implantable drug pump.
46. The medical system of claim 22, wherein the medical device comprises a trial neurostimulator.
47. A medical system comprising:
means for monitoring a signal that varies as a function of patient activity via a medical device that delivers a therapy to a patient;
means for periodically determining an activity level of the patient based on the signal;
means for associating each of the determined activity levels with a current therapy parameter set;
means for determining a value of an activity metric for each of a plurality of therapy parameter sets based on activity levels associated with the therapy parameter sets; and
means for presenting a list of the plurality of therapy parameter sets and activity metric values associated with the therapy parameter sets.
48. The medical system of claim 47, further comprising means for ordering the list according to the activity metric values.

49. The medical system of claim 48, further comprising means for determining a value of each of a plurality of activity metrics for each of a plurality of therapy parameter sets based on activity levels associated with the therapy parameter sets, wherein the means for ordering the list comprises means for ordering the list according to a user selected one of the activity metrics.

50. A medical system comprising:

an implantable medical device that delivers a therapy to a patient, monitors a signal that varies as a function of patient activity, periodically determines an activity level of the patient based on the signal, and associates each of the determined activity levels with a current therapy parameter set; and

an external programming device including a display that receives information identifying a plurality of therapy parameter sets and associated activity levels from the implantable medical device via telemetry, determines a value of an activity metric for each of a plurality of therapy parameter sets based on activity levels associated with the therapy parameter sets, and presents a list of the plurality of therapy parameter sets and activity metric values associated with the therapy parameter sets via the display.

51. The medical system of claim 50, wherein the implantable medical device determines when the patient is awake, and periodically determines an activity level while the patient is awake.

52. The medical system of claim 50, wherein, for each of the therapy parameter sets, the external programming device determines at least one of a mean and a median of activity levels associated with the therapy parameter set, and determines the activity metric value based on the at least one of the mean and the median activity level.

53. The medical system of claim 52, wherein, for each of the therapy parameter sets, the external programming device compares the at least one of the mean and the median activity level to at least one threshold, and selects an activity metric value from a plurality of predetermined possible activity metric values based on the comparison.

54. The medical system of claim 50, wherein, for each of the therapy parameter sets, the external programming device compares each of the activity levels associated with the therapy parameter set to a threshold value, and determines as the activity metric value for the therapy parameter set at least one of a percentage of time above the threshold and a percentage of time below the threshold.

55. The medical system of claim 50, wherein, for each of the plurality of parameter sets, the external programming device compares each of the activity levels associated with the therapy parameter set to a threshold value, and determines as the activity metric value for the parameter set an average length of time that consecutively determined activity levels were above the threshold.

56. The medical system of claim 50, wherein an activity level comprises a number of activity counts.

57. The medical system of claim 56, wherein the external programming device determines the activity metric value for each of the therapy parameter sets as an average number of activity counts per a unit of time.

58. The medical system of claim 50, wherein the programming device orders the list of therapy parameter sets according to the associated activity metric values.

59. The medical system of claim 58, wherein the programming device determines a value of each of a plurality of activity metrics for each of the plurality of therapy parameter sets based on activity levels associated with the therapy parameter sets, receives a selection of one of the activity metrics from a user, and orders the list according to the user selected one of the activity metrics.

60. The medical system of claim 50, wherein the implantable medical device comprises at least one of an implantable neurostimulator and an implantable drug pump.

61. A programming device comprising:
a telemetry circuit;
a user interface including a display; and
a processor that receives information identifying a plurality of therapy parameter sets and associated activity levels from an implantable medical device via the telemetry circuit, determines a value of an activity metric for each of a plurality of therapy parameter sets based on activity levels associated with the therapy parameter sets, and presents a list of the plurality of therapy parameter sets and activity metric values associated with the therapy parameter sets via the display.
62. The programming device of claim 61, wherein, for each of the therapy parameter sets, the processor determines at least one of a mean and a median of activity levels associated with the therapy parameter set, and determines the activity metric value based on the at least one of the mean and the median activity level.
63. The programming device of claim 62, wherein, for each of the therapy parameter sets, the processor compares the at least one of the mean and the median activity level to at least one threshold, and selects an activity metric value from a plurality of predetermined possible activity metric values based on the comparison.
64. The programming device of claim 61, wherein, for each of the therapy parameter sets, the processor compares each of the activity levels associated with the therapy parameter set to a threshold value, and determines as the activity metric value for the therapy parameter set at least one of a percentage of time above the threshold and a percentage of time below the threshold.

65. The programming device of claim 61, wherein, for each of the plurality of parameter sets, the processor compares each of the activity levels associated with the therapy parameter set to a threshold value, and determines as the activity metric value for the parameter set an average length of time that consecutively determined activity levels were above the threshold.

66. The programming device of claim 61, wherein an activity level comprises a number of activity counts, and the processor determines the activity metric value for each of the therapy parameter sets as an average number of activity counts per a unit of time.

67. The programming device of claim 61, wherein the processor orders the list of therapy parameter sets according to the associated activity metric values.

68. The programming device of claim 67, wherein the processor determines a value of each of a plurality of activity metrics for each of the plurality of therapy parameter sets based on activity levels associated with the therapy parameter sets, receives a selection of one of the activity metrics from a user via the user interface, and orders the list according to the user selected one of the activity metrics.

69. A computer-readable medium comprising instructions that cause a programmable processor to:

receive information identifying a plurality of therapy parameter sets and associated activity levels from an implantable medical device;

determine a value of an activity metric for each of a plurality of therapy parameter sets based on activity levels associated with the therapy parameter sets; and

present a list of the plurality of therapy parameter sets and activity metric values associated with the therapy parameter sets.

70. The medium of claim 69, wherein the instructions that cause the processor to determine a value of an activity metric comprise instructions that cause the processor to, for each of the therapy parameter sets determine at least one of a mean and a median of activity levels associated with the therapy parameter set.

71. The medium of claim 70, wherein the instructions that cause the processor to determine a value of an activity metric comprise instructions that cause the processor to, for each of the therapy parameter sets:

- compare the at least one of the mean and the median activity level to at least one threshold; and

- select an activity metric value from a plurality of predetermined possible activity metric values based on the comparison.

72. The medium of claim 69, wherein the instructions that cause the processor to determine a value of an activity metric comprise instructions that cause the processor to, for each of the therapy parameter sets:

- compare each of the activity levels associated with the therapy parameter set to a threshold value; and

- determine as the activity metric value for the therapy parameter set at least one of a percentage of time above the threshold and a percentage of time below the threshold.

73. The medium of claim 69, wherein the instructions that cause the processor to determine a value of an activity metric comprise instructions that cause the processor to, for each of the plurality of parameter sets:

- compare each of the activity levels associated with the therapy parameter set to a threshold value; and

- determine as the activity metric value for the parameter set an average length of time that consecutively determined activity levels were above the threshold.

74. The medium of claim 69, wherein an activity level comprises a number of activity counts, the instructions that cause the processor to determine a value of an activity metric comprise instructions that cause the processor determine an average number of activity counts per a unit of time.
75. The medium of claim 69, further comprising instructions that cause the processor to order the list of therapy parameter sets according to the associated activity metric values.
76. The medium device of claim 75,
wherein the instructions that cause the processor to determine a value of an activity metric comprise instructions that cause the processor to determine a value of each of a plurality of activity metrics for each of the plurality of therapy parameter sets based on activity levels associated with the therapy parameter sets,
the medium further comprising instructions that cause the processor to:
receive a selection of one of the activity metrics from a user; and
order the list according to the user selected one of the activity metrics.